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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/728,020	12/01/2000	Richard G. Ogier	SRI/4297-2	6111

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EXAMINER
CHOUDHURY, AZIZUL Q

ART UNIT	PAPER NUMBER
2143	12

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/728,020	OGIER ET AL.
	Examiner	**Art Unit**	
	Azizul Choudhury	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *12/01/00*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-14* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-14* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *4, 8, 11*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Detailed Action

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Gupta,

Sandeep K.S. and Srimani, Pradip K. ("An Adaptive Protocol for Reliable Multicast in

Mobile Multi-hop Radio Networks," (IEEE, 1999)), hereafter referred to as Gupta.

1.   With regards to claim 1, Gupta teaches a method for disseminating topology and

link-state information over the multi-hop network, comprising: maintaining a path tree

for each source node in the network that can produce an update message, each path

tree having that source node as a root node, a parent node, and zero or more children

nodes; receiving an update message from the parent node in the path tree maintained

for the source node that originated the received update message, the update message

including information related to a link in the network; and determining whether to

forward the update message to children nodes, if any, in the path tree maintained for

the source node that originated the update message in response to the information in

the received update message (Gupta discloses a design that performs a multi-hop

through a network topology with nodes as claimed (section 2, first paragraph). In

addition, Gupta's design also contains trees with parents and children as claimed
(section 3.1 & 3.1.1)).

2.   With regards to claim 2, Gupta teaches a method wherein the information related
to the link indicates whether the update message is to be forwarded to other nodes
(Acknowledgement means are present within Gupta's design (section 3.1.1, second
paragraph)).

3.   With regards to claim 3, Gupta teaches a method wherein the path tree
associated with each source node is a minimum-hop-path tree (Gupta's design uses a
multi-hop method (section 2, first paragraph) in a network with trees (section 3.1 and
3.1.1). One of the benefits of tree architecture is the ability for finding the
fastest/minimum path).

4.   With regards to claim 4, Gupta teaches a method further comprising obtaining
link-state information from one or more nodes in the path tree maintained for a given
source node for use in developing the path tree to that source node (Acknowledgement
means are present within Gupta's design (section 3.1.1, second paragraph)).

5.   With regards to claim 5, Gupta teaches a method wherein the link is a wireless
communication link (The network in Gupta's design is mobile and hence wireless
(section 2, first paragraph)).

6.   With regards to claim 6, Gupta teaches a method further comprising sending a
new parent message to a node selecting that node as a new parent node for the source
node originating the update message (Tree architectures allow for changes to node
layouts to occur, which means that parents may become children and children may

become parents. Gupta suggests within the disclosure that such means are also present in his design (section 3.1.1)).

7.   With regards to claim 7, Gupta teaches a method further comprising receiving from the new parent node in response to the new parent message link-state information associated with the source node that originated the update message (Messages are able to be transferred between all the nodes of Gupta's design (section 3.1 and 3.1.1)).

8.   With regards to claim 8, Gupta teaches a method wherein the new parent message included a serial number and the link-state information received in response to the new parent message is associated with update messages having serial numbers that are greater than the serial number included in the new parent message (One of the major purposes of the multi-hop network design is to obtain the status of the network. In addition, sequence numbers are provided (section 3.1.1)).

9.   With regards to claim 9, Gupta teaches a method further comprising: determining that a path through a new parent node for the source node originating the update message has the same number of node hops as the path through the current parent node, and maintaining the current parent node as the parent node for the given source node (Another incentive of the tree architecture is that messages are able to record which nodes were visited (section 2)).

10.   With regards to claim 10, Gupta teaches a method further comprising: determining that a path to the source node originating the update message ceases to exist; and maintaining the current parent node as the parent node for the source node (In tree network architectures, data is able to route itself by looking ahead to see if a

path is available. In addition, Gupta suggests that data is able to route itself (section

2)).

11.   With regards to claim 11, Gupta teaches a method further comprising:

broadcasting the update message to the children nodes if the number of children nodes

exceeds a predefined threshold when forwarding the update message to children nodes

(Gupta's design allows for topology to be monitored and updated constantly (section 2).

This feature along with the node status monitoring feature suggests that means are

present for notifying the presence of too many nodes).

12.   With regards to claim 12, Gupta teaches a method further comprising

transmitting the update message to each child node using a unicast mode if the number

of children nodes is less than a predefined threshold when forwarding the update

message to children nodes (Gupta's design allows for messages to be transmitted by

unicast as needed (section 2)).

13.   With regards to claim 13, Gupta teaches a method further comprising:

computing a parent node for each neighbor node and source node; and determining

which neighbor nodes are children nodes for a given source node (For a tree network

architecture to function properly, means must be present by which to detect the parent

node and which are the children nodes. Gupta's design allows for the data structures

within the nodes to identify themselves accordingly (section 3.2)).

14.   With regards to claim 14, Gupta teaches a network, comprising: a plurality of

nodes in communication with each other over communication links, each node

maintaining a path tree for each source node in the network that can produce an update

message, each path tree having that source node as a root node, a parent node, and zero or more children nodes, wherein one of the nodes (i) receives an update message from the parent node in the path tree maintained for the source node that originated the received update message, the update message including information related to a link in the network, (ii) and determines whether to forward the update message to children nodes, if any, in the path tree maintained for the source node that originated the update message in response to the information in the received update message (Gupta discloses a design that performs a multi-hop through a network topology with nodes as claimed (section 2, first paragraph). In addition, Gupta's design also contains trees with parents and children as claimed (section 3.1 & 3.1.1)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Azizul Choudhury whose telephone number is 703-305-7209. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on 703-308-5221. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

AC

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